

**APPENDIX A**

## **AOC A - UST Removal Closure Report**

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## **Closure Report**

**U.S. Naval Station  
UST Tank Removal  
Ceiba and Vieques, Puerto Rico**

*Tank 1005*

**Submitted by:**

**IT Corporation  
312 Directors Drive  
Knoxville, Tennessee 37923**

**Prepared by IT and:**

**Pedro Panzardi & Associates  
97 De Diego Avenue  
San Juan, Puerto Rico 00926**

**Contract No.: N62470-96-B-6821  
PPA Project 768251**

**April 2000**

## 1.0 Introduction

The United States Naval Station removed underground storage tanks (UST) shown in Table 1-1 at its facilities at Roosevelt Roads in Ceiba, and in Vieques. Tanks at locations 1729, 2037, 2293, 1005, and 4703 were replaced with the aboveground storage tank (AST) and USTs shown in Table 1-2.

**Table 1-1 - Tank Removals**

Tank Number	Capacity (gallons)	Building	Location
UST 242	1000	242	R Roads, Ceiba
UST 386	550	386	R Roads, Ceiba
UST 860	1000	860	R Roads, Ceiba
UST 1729	1000	1729	R Roads, Ceiba
UST 2279	4000	2279	R Roads, Ceiba
UST 3175	550	3175	R Roads, Ceiba
UST 2037	600	2037	R Roads, Ceiba
UST 2293	4000	2293	R Roads, Ceiba
UST 1005	15000	1005	Vieques (OP 1)
UST 4703 A	4000	4703	Vieques
UST 4703 B	4000	4703	Vieques
UST 4703 C	4000	4703	Vieques

The following new tanks were installed after receiving approval of from the Environmental Quality Board (EQB) number 02-86-1935 on June 24, 1996 for the UST installation.

**Table 1-2 - New Tanks Installed**

Tank Number	Capacity (gallons)	Building	Location
AST 1729	2000	1729	R Roads, Ceiba
UST 2037	500	2037	R Roads, Ceiba
UST 2293	4000	2293	R Roads, Ceiba
UST 1005	15000	1005	Vieques
UST 4703 A	4000	4703	Vieques
UST 4703 B	4000	4703	Vieques
UST 4703 C	4000	4703	Vieques

**UST 2279:**

Excavate and remove one 4,000-gallon waste oil tank and associated soil; cut and remove one set of strap and turnbuckle assemblies; saw cut concrete slab and asphalt pavement, respectively; remove concrete and asphalt debris.

**UST 3175:**

Excavate and remove one 500-gallon No. 2 fuel tank and associated soil; cut and remove one set of strap and turnbuckle assemblies and various piping; saw cut concrete sidewalk and remove concrete slab and containment debris.

**UST 2037:**

Excavate and remove one 600-gallon diesel tank and associated soil; cut and remove one set of strap and turnbuckle assemblies and various piping; break and remove concrete hold-down slab debris.

**UST 2293:**

Excavate and remove one 4,000-gallon diesel tank and any associated soil; cut and remove one set of straps and turnbuckle assemblies. Break and remove concrete slab. Remove and replace gauge and various piping. Replace tank with another approved 4,000-gallon tank.

➤ **UST 1005:**

Excavate and remove one 15,000-gallon diesel tank and associated soil; cut and remove one set of strap and turnbuckle assemblies, gauge, and various piping; break and remove concrete slab debris.



# Table 3-1 - Sample Summary Matrix

(Continued)

Roosevelt Roads Analytical						(mg/kg)					
#	Date Smpl	Bldg.	S#	Type	TRPH	Benzene	Ethyl Benzene	Tol.	O-Xylene	M-Xylene	P-Xylene
8	1/11/97	2279	2279-TH-4	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
9	1/11/97	2279	2279-TH-5	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
10	1/11/97	2279	2279-TH-6	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
12	12/3/96	3175	3075-1-5	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
13	12/3/96	3175	3075-2-5	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
14	12/3/96	3175	3075-PT-3	Soil	9.2	<.5	<.5	<.5	<.5	<.5	<.5
15	12/3/96	3175	3075-5-5	Soil	72	<.5	<.5	<.5	<.5	<.5	<.5
16	1/9/97	2037	2037-TH-1	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
17	1/9/97	2037	2037-TH-2	Soil	<5.0	<.5	<.5	1.3	<.5	<.5	<.5
18	4/15/97	2293	2293-1	Soil	<5.0	<.5	<.5	3.6	<.5	<.5	<.5
19	4/15/97	2293	2293-2	Soil	9.7	<.5	<.5	0.89	<.5	<.5	<.5
20	4/15/97	2293	2293-3	Soil	16	<.5	<.5	0.79	<.5	<.5	<.5
21	4/15/97	2293	2293-4	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
22	4/15/97	2293	2293-5	Soil	9.8	<.5	<.5	2.7	<.5	<.5	<.5
23	3/16/97	1005	1005-1	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
24	3/16/97	1005	1005-2	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
25	3/16/97	1005	1005-3	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
26	3/16/97	1005	1005-4	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
27	3/5/97	4703	4703-A-4	Soil	<5.0	<.5	<.5	0.9	<.5	<.5	<.5
28	3/5/97	4703	4703-A-5	Soil	<5.0	<.5	<.5	1.1	<.5	<.5	<.5
29	3/5/97	4703	4703-A-6	Soil	<5.0	<.5	<.5	2.1	<.5	<.5	<.5
30	3/5/97	4703	4703-B-7	Soil	<5.0	<.5	<.5	2.1	<.5	<.5	<.5
31	3/7/97	4703	4703-B-8	Soil	<5.0	<.5	<.5	3.7	<.5	<.5	<.5
32	3/7/97	4703	4703-B-9	Soil	<5.0	<.5	<.5	<.5	<.5	<.5	<.5
33	3/3/97	4703	4703-C-1	Soil	84	<.5	<.5	<.5	<.5	<.5	<.5
34	3/3/97	4703	4703-C-2	Soil	<5.0	<.5	<.5	1	<.5	<.5	<.5
35	3/3/97	4703	4703-C-3	Soil	<5.0	<.5	<.5	2.2	<.5	<.5	<.5

### **3.1 General Procedure**

Where applicable, as per instructions in drawings included in Appendix A, one temporary storage tank and connections were installed to continue operations while the removal and/or installation activities were being performed. The fuel in the existing storage tank was transferred to the temporary tank. Any sludge or slurry in the existing UST was to be removed for future disposal. There is no documentation of sludge or slurry being present in the tanks removed, cleaned, and disposed. Then the tank removal activities started. Once the tanks were removed, where applicable, a new tank was installed. The cleaning activities were all performed at the Roosevelt Roads facilities in Ceiba and on site at Vieques.

### **3.2 Tanks Removal**

The Tank and Piping Removal and Disposal Plan was followed for the removal of the tanks UST 242, UST 386, UST 860, UST 1729, UST 2279, UST 3175, UST 2037, UST 2293 at Roosevelt Roads in Ceiba and UST 1005, UST 4703, UST 4703-B, and UST 4703-C in Vieques. The area around the tank and depicted as "Excavation Limits" in the drawings were surveyed to detect any underground utilities. In the meantime, the tank contents were removed and temporary tanks were installed if applicable. Once the area was surveyed, excavation started. Soil was placed in a plastic liner and removed where composite samples were taken. Once the tank was exposed, the lines were removed and the tank was removed. Soil samples were then taken. The area was either secured until results were obtained or backfilled immediately if it was a heavy traffic area. The tank hold was then closed by backfilling with uncontaminated soil and compacting or a replacement UST installed. See the photographs of tank removal and replacement activities in Appendix E.

### **3.3 Cleaning**

All the cleaning activities were performed at the Roosevelt Roads facilities in Ceiba. The tanks were pressure cleaned; any residual material was to be removed by a vacuum truck and disposed.

Samples were taken at the two ends at approximately 10 feet deep. Results are in Appendix C. A new tank was then installed. Closure was then completed.

### **UST 2293:**

A temporary tank was set up at Building 2293 on February 15, 1997 after poly was placed under the tank and a berm was placed around it. There were 550 gallons of diesel transferred from the old tank to the temporary tank on February 17, 1997. The concrete around UST 2293 was broken, hauled, and disposed of. The UST was removed and samples were taken on April 15, 1997 and sent to the laboratory. The laboratory results are in Appendix C.

### **UST 1005:**

This closure involved the excavation and removal of one 15,000-gallon diesel tank and associated soil; cutting and removal of one set of strap and turnbuckle assemblies, gauge, and various piping; breaking and removing concrete slab debris.

Work began on the Vieques Site in July 1997. The tank was removed and four samples were taken. The results are shown in Table 3-1 and Appendix C. The replacement tank was placed and clean soil was backfilled and compacted.

### **USTs 4703 A, B, and C:**

This closure involved excavating and removing one 4,000-gallon diesel tank, two 4,000-gallon gasoline tanks, and 200-cubic yards of soil; cutting and removing three sets of straps and turnbuckle assemblies, gauges, and various piping; transferring 7,960-gallon gasoline, 3,980-gallon diesel, and 60-gallon wastewater to temporary tanks; breaking and removing 23-cubic yards of concrete hold-down-tank slab debris.

The four tanks at this site were removed and three samples were taken at each tank hole. The results are shown in Table 3-1 and Appendix C.

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CEIBA, PR 00735-2002



ANALYTICAL REPORT

Page 1

Submission Number: 9703000438  
Date Received: 03/24/97  
Date Reported: 04/03/97

Client's P.O. Number:  
Project Number: 768251  
Project Name: 768251

Lab Sample Number: 9703438 1  
Client Sample Number: 1005-1  
Sample Description: SOIL

Date Sampled: 03/16/97  
Sample Matrix: SOLID

Method	Analyte	Result	Q	Unit	Reporting Limit	Analyst	Date Analyzed	Date Prepared
SM2540G	PERCENT SOLID	93.0		%	0.0	LL	03/28/97	
9073	TRPH	<5.0		mg/kg	5.0	EM	04/02/97	
<u>BTEX VOLATILE ORGANICS</u>								
8020	BENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	ETHYLBENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	TOLUENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	o-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	m-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	p-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	

Lab Sample Number: 9703438 2  
Client Sample Number: 1005-2  
Sample Description: SOIL

Date Sampled: 03/16/97  
Sample Matrix: SOLID

Method	Analyte	Result	Q	Unit	Reporting Limit	Analyst	Date Analyzed	Date Prepared
SM2540G	PERCENT SOLID	94.0		%	0.0	LL	03/28/97	
9073	TRPH	<5.0		mg/kg	5.0	EM	04/02/97	
<u>BTEX VOLATILE ORGANICS</u>								
8020	BENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	ETHYLBENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	TOLUENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	o-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	m-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	p-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	

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JT CORPORATION  
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ANALYTICAL REPORT

Page 2

Submission Number: 9703000438  
Date Received: 03/24/97  
Date Reported: 04/03/97

Client's P.O. Number:  
Project Number: 768251  
Project Name: 768251

Lab Sample Number: 9703438 3  
Client Sample Number: 1005-3  
Sample Description: SOIL

Date Sampled: 03/16/97  
Sample Matrix: SOLID

Method	Analyte	Result	Q	Unit	Reporting Limit	Analyst	Date Analyzed	Date Prepared
SM2540G	PERCENT SOLID	97.0		%	0.0	LL	03/28/97	
9073	TRPH	<5.0		mg/kg	5.0	EM	04/02/97	
<u>BTEX VOLATILE ORGANICS</u>								
8020	BENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	ETHYLBENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	TOLUENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	o-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	m-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	p-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	

Lab Sample Number: 9703438 4  
Client Sample Number: 1005-4  
Sample Description: SOIL

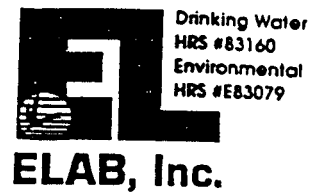
Date Sampled: 03/16/97  
Sample Matrix: SOLID

Method	Analyte	Result	Q	Unit	Reporting Limit	Analyst	Date Analyzed	Date Prepared
SM2540G	PERCENT SOLID	97.0		%	0.0	LL	03/28/97	
9073	TRPH	<5.0		mg/kg	5.0	EM	04/02/97	
<u>BTEX VOLATILE ORGANICS</u>								
8020	BENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	ETHYLBENZENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	TOLUENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	o-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	m-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	
8020	p-XYLENE	<0.50		ug/kg	0.50	RM	03/28/97	

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ANALYTICAL REPORT

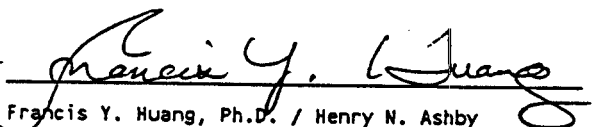
Page 3

Submission Number: 9703000438      Client's P.O. Number:  
Date Received: 03/24/97      Project Number: 768251  
Date Reported: 04/03/97      Project Name: 768251

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CERTIFICATION: All analytical data reported above were obtained using the specified methods and were validated by our laboratory quality control system. This laboratory follows an approved quality assurance program.

Respectfully submitted:

  
Francis Y. Huang, Ph.D. / Henry N. Ashby  
Lab Director / President

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# QC REPORT

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# Quality Control Report



Drinking Water  
HRS #83160  
Environmental  
HRS #E83079

**ELAB, Inc.**

Client ID.:

IT CORP.

Submis.: 9703000438

DATE:

4/2/97

Parameter	Precision				Accuracy					Method blk mg/L
	Sample I.D.	Rep A mg/L	Rep B mg/L	%RPD	Sample I.D.	Sample Conc. mg/L	MS Conc. mg/L	Spike Con. mg/L	%REC	
Alkalinity										
Ammonia										
BOD										
Silica										
Chloride										
COD										
Conductivity										
Cyanide										
Fluoride										
Hex. Chromium										
Kjeldahl Nitrogen										
Nitrate										
Nitrite										
Oil and Grease										
Ortho Phosphate										
pH										
Phenol										
Sulfate										
Hydrogen Sulfide										
TDS										
TOC										
Surfactants										
Total Phosphate										
Total Solids										
TRPH 418.1/9073	03557-1 MS	<5.00	<5.00	0.791	03557-1	<5.00	<5.00	<5.00	101.	<5.00
TSS										
Turbidity										
Oxidized Nitrogen										
Odor										
Flash Point										
Color										

%REC = [(MS Conc.-Sample Conc.)/Spike Conc.]

\* = Insufficient Sample to perform QC.

DATA\W\ETCHEM\QC\03438W\ETALS

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*Surrogate Percent Recovery  
Volatiles in Soil - 8020*

Client Name: IT Corporation 97-03-438

Date: 3/28/97

Sample I.D.	1,4-Difluorobenzene (80-120)	4-Bromofluorobenzene (72-120)	Comments
BLANK	112	87.0	
97-03-438-1	105	87.0	
97-03-438-2	103	94.5	
97-03-438-3	104	91.5	
97-03-438-4	98.0	83.5	

Volatiles: 0 out of 10 ;outside QC limits

*Water Matrix Spike/Matrix Spike Duplicate Recovery  
Volatiles in Soil -*

Sample I.D. 97-03-438-3 (MS/MSD)

Compound		Conc. Spike Added(ug/L)	Sample Result	Conc. MS	%REC	Conc. MSD	%REC	%RPD
RPD Limit	REC Limit							
Chlorobenzene								
20	61-134	25	ND	24.0	96.0	23.6	94.4	1.68
Toluene								
20	62-135	25	ND	25.5	102	24.8	99.2	2.78
Benzene								
20	80-130	25	ND	22.4	89.6	22.3	89.2	0.45

Volatiles: 0 out of 9 ;outside QC limits

Comments: \_\_\_\_\_

v:\data\admin\forms\qc\601602qc

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INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD\*

Reference Document No. 517179  
Page 1 of 1

Project Name/No. <sup>1</sup> 768251  
Sample Team Members <sup>2</sup> L. CRONK  
Profit Center No. <sup>3</sup> 3423510  
Project Manager <sup>4</sup> PAUL ANDREAS  
Purchase Order No. <sup>6</sup> \_\_\_\_\_  
Required Report Date <sup>11</sup> ASAP

Samples Shipment Date <sup>7</sup> 3-20-97  
Lab Destination <sup>8</sup> EnviroLab  
Lab Contact <sup>9</sup> HANK ASLBY  
Project Contact/Phone <sup>12</sup> 904-672-5668  
Carrier/Waybill No. <sup>13</sup> FEDEX 400-9012-0100

Bill to: <sup>5</sup> I.T. CORP.  
2925 BRIARWOOD STE 900  
HOUSTON, TX. 77042  
ATTN: PAUL ANDREAS  
Report to: <sup>10</sup> I.T. CORP.  
P.O. BOX 20002-154  
CEIBA, PUERTO RICO  
ATTN: LARRY CRONK 00735-2002

## ONE CONTAINER PER LINE

Sample Number <sup>14</sup>	Sample Description/Type <sup>15</sup>	Date/Time Collected <sup>16</sup>	Container Type <sup>17</sup>	Sample Volume <sup>18</sup>	Pre-servative <sup>19</sup>	Requested Testing Program <sup>20</sup>	Condition on Receipt <sup>21</sup>	Disposal Record No. <sup>22</sup>
1005-1	Soil	3-16-97 @ 0835	500 ML CLEAR GLASS	Full	ILK	TPH 4181 MOD BTEX 8020	9703-438-1	
1005-2	↓	3-16-97 @ 0915	↓	↓	↓	↓	<b>FOR LAB USE ONLY</b>	
1005-3	↓	3-18-97 @ 1230	↓	↓	↓	↓		
1005-4	↓	3-18-97 @ 1300	↓	↓	↓	↓		
							<b>FOR LAB USE ONLY</b>	

Special Instructions: <sup>23</sup> PLEASE RUSH

Possible Hazard Identification: <sup>24</sup>

Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: <sup>25</sup>

Return to Client ☐ Disposal by Lab ☒ Archive \_\_\_\_\_ (mos.)

Turnaround Time Required: <sup>26</sup>

Normal ☐ Rush ☒

QC Level: <sup>27</sup>

I. ☐ II. ☐ III. ☐

Project Specific (specify): \_\_\_\_\_

1. Relinquished by <sup>28</sup> Larry Cronk  
(Signature/Affiliation)

Date: 3-20-97  
Time: 1330

1. Received by <sup>28</sup>  
(Signature/Affiliation)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

2. Relinquished by  
(Signature/Affiliation)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

2. Received by  
(Signature/Affiliation)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

3. Relinquished by  
(Signature/Affiliation)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

3. Received by  
(Signature/Affiliation) [Signature]

Date: 3/24/97  
Time: 16:31

Comments: <sup>29</sup>

Write: To accompany samples

Yellow: Field copy

\* See back of form for special instructions.

**PROJECT:** Remove/Replace Various UST's at AFWTF Locations US Naval Station,  
Roosevelt Roads, Puerto Rico; Pico del Este, and Vieques, Puerto Rico

**CONTRACT NUMBER:** N62470-96-C-6821

**LINE ITEM:** Disposal of Fiberglass Fuel Storage Tanks and Piping


**SITE:** 1005

**DESCRIPTION:**

1. One (1) fifteen (15) thousand gallon fuel storage tank and piping were triple (3X) cleaned, rinsate water sampled and field FID tested. All tanks and piping were below acceptable levels after cleaning.
2. Tank were broken up into small manageable pieces, making the tank not re-useable.
3. The small pieces of the FG Tank and piping were loaded in the leased Leaseaway Dump Truck and transported to the Vieques landfill by Rich Heffernan, IT Employee, on March 27, 28, and 29, 1997.

  
Larry Cronk  
QC Manager

The above mentioned materials were received at the Vieques, Puerto Rico, landfill on the dates indicated.

  
Landfill Representative

# QC REPORT

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# Quality Control Report



**ELAB, Inc.**

Client ID.:

IT CORP.

Submis.: 9703000438

DATE:

4/2/97

Parameter	Precision				Accuracy					Method
	Sample I.D.	Rep A mg/L	Rep B mg/L	%RPD	Sample I.D.	Sample Conc. mg/L	MS Conc. mg/L	Spike Con. mg/L	%REC	
Alkalinity										
Ammonia										
BOD										
Silica										
Chloride										
COD										
Conductivity										
Cyanide										
Fluoride										
Hex. Chromium										
Kjeldahl Nitrogen										
Nitrate										
Nitrite										
Oil and Grease										
Ortho Phosphate										
pH										
Phenol										
Sulfate										
Hydrogen Sulfide										
TDS										
TOC										
Surfactants										
Total Phosphate										
Total Solids										
TRPH 418.1.9073	03557-1 MS	<5.00	<5.00	0.791	03557-1	<5.00	<5.00	<5.00	101.	<5.00
TSS										
Turbidity										
Oxidized Nitrogen										
Odor										
Flash Point										
Color										

%REC = [(MS Conc. - Sample Conc.) / Spike Conc.]

\* = Insufficient Sample to perform QC.

\\DATA\WETCHEM\QC\03438WET.XLS

P.O. Box 468 • 8 East Tower Circle • Ormond Beach, Florida 32175-0468

(904) 672-5668 • Fax (904) 673-4001

Puerto Rico: Mobile (809) 390-3505 • Beeper (809) 759-1255 • Unit #: 2148194

**Surrogate Percent Recovery**  
**Volatiles in Soil - 8020**

Client Name: IT Corporation 97-03-438

Date: 3/28/97

Sample I.D.	1,4-Difluorobenzene (80-120)	4-Bromofluorobenzene (72-120)	Comments
BLANK	112	87.0	
97-03-438-1	105	87.0	
97-03-438-2	103	94.5	
97-03-438-3	104	91.5	
97-03-438-4	98.0	83.5	

Volatiles: 0 out of 10; outside QC limits

**Water Matrix Spike/Matrix Spike Duplicate Recovery**  
**Volatiles in Soil -**

Sample I.D. 97-03-438-3 (MS/MSD)

Compound		Conc. Spike Added(ug/L)	Sample Result	Conc. MS	%REC	Conc. MSD	%REC	% RPD
RPD Limit	REC Limit							
Chlorobenzene		25	ND	24.0	96.0	23.6	94.4	1.68
20	61-134							
Toluene		25	ND	25.5	102	24.8	99.2	2.78
20	62-135							
Benzene		25	ND	22.4	89.6	22.3	89.2	0.45
20	80-130							

Volatiles: 0 out of 9; outside QC limits

Comments:

r:\data\admin\forms\qc\601602qc

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4/2/97				STANDARDS I.D.			CONC. (ug/mL)	Trace #
Client: DE 8500 PID/FID				602/matrix/IDE			20	610
Sample(s): P.M.C.				Vol Matrix Spk			25	595
Method: 60218020								
MS Data Run No.: 24040 P. 3-557								
Supervisor Review: 24076 for 4-13.1								
Approval Date: MM 4/8/97				Internal Standard			20	619
Lab Sample #	Client Name	Date File	ALS#	Purg. Vol. (uL)	Dil. Factor	Int. Std. Vol. (uL)	Analyses *	Comments
Std	ELIQC	600402		5000	None	5uL	602/50020	
Blk MS		3MS0402					602	
D. 1, Blk		Blk 0402						
D. 1, Blk	Handex	ABLK401	64284	10mL	None		method 18	
Air V. EFF	4030-7	VESEFF	5					
Air VEW-1	4-0321	VIEW21	6					
2	2	2	7					
3	3	3	8					
4	4	4	9					
5	5	5	4850					
6	6	6	1					
Air Dup		ADUP	2					
3-557-1		64893	4	5uL	Abn		602.0	
2			5					
3			6					
4			7					
4ms			8					
4msD			9					
Cont + Std			10	5uL			602	

Specify the analyses, if applicable

Input redirected to LPT1:  
 R/L FULL Processed: 04-02-1997 10:35:12, Segment 2, Cycle 2  
 DATA SAVED IN FILE D:\NMS04022.P75 Second Channel Stored in D:\NMS04022.P75

\*\*\*\*\* INTERNAL STANDARD TABLE \*\*\*\*\*

\*\*\*\*\* 04-02-1997 10:35:22 Version 5.2.0 \*\*\*\*\*  
 Sample Name: ZOU5/L FULL BLK HS Data File: D:\NMS04022  
 Date: 04-02-1997 09:58:08 Method: E:\NCPIDPID 02-27-1997 09:14:39 Version: 40  
 Interface: 1 Cycles: 2 Operator: FHK Channel: A Vial#: 11A  
 Starting Peak Width: 10 Threshold: .01 Area Threshold: 200  
 \*\*\*\*\*  
 Instrument Type: PE 8500 GC FID/FID Column Type:  
 Solvent Description:  
 Conditions:  
 Detector 1:  
 Detector 2:  
 Misc. Information: METHOD 302-8020 LPT1:  
 \*\*\*\*\*  
 Starting Delay: 0.00 Ending retention time: 31.00  
 Area reject: 0 One sample per 1.002 sec.  
 Amount injected: 1.00 Dilution factor: 1.00  
 Internal Standard Amount: 20  
 Sample Weight: 1.00000

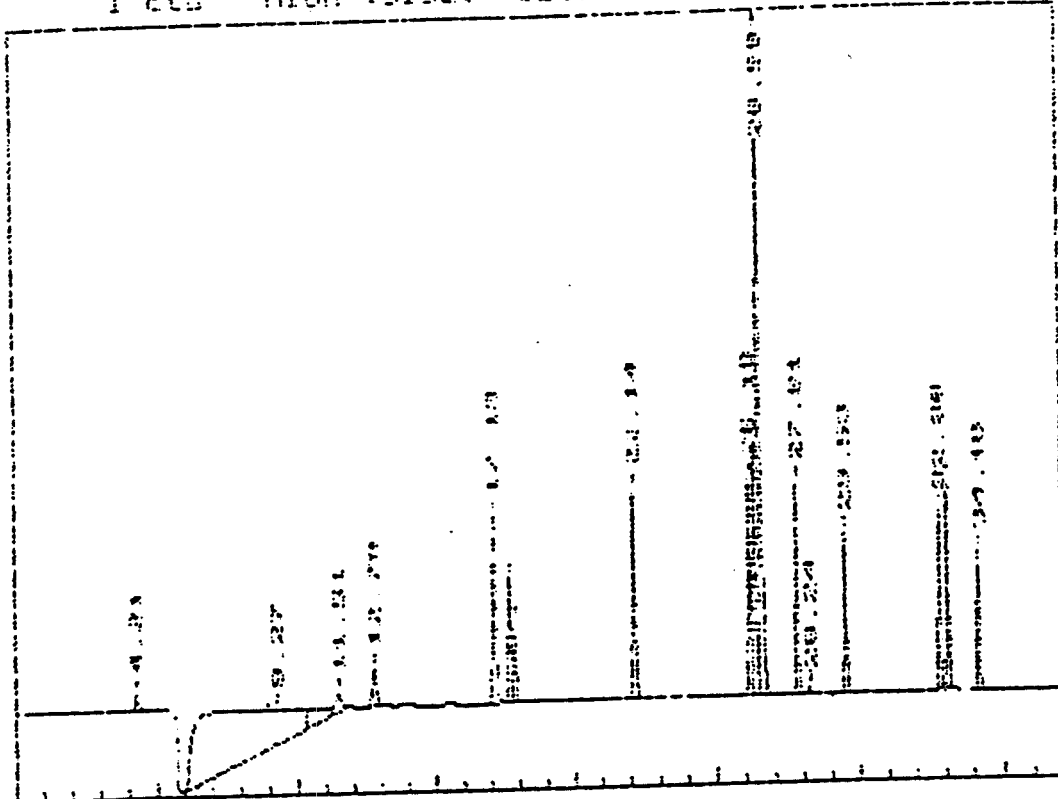
RET TIME	PEAK NAME	CONCENTRATION in ug/l	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	REF PEAK	INT. STD. PEAK	DELTA RET TIME	CHG/AREA
1 4.309		4.5584	0.90412	13416	1113	12.1 1	6			3.3978E-04
2 9.268		260.9462	49.56122	226844	2528	327.1 2	6			3.3978E-04
3 11.506 MTBE		23.0470	4.06571	26487	1345	19.7 2	6	6	0	8.7011E-04
4 12.792 Isopropylether		15.2054	2.82142	18245	2456	11.3 1	6	6	0	5.3835E-04
5 17.134 Benzene		17.8547	3.14571	57863	12663	7.4 2	6	6	0	1.9022E-04
6 17.685 Fluorobenzene		20.0000	0.00002	55261	8422	7.0 2	6	6	0	3.3978E-04
7 17.852 1,4-Difluorobenzene		22.5746	3.32132	40574	5511	7.4 2	6	6	0	5.5692E-04
8 22.144 Toluene		19.5437	3.27132	50507	14184	6.4 1	6	6	0	2.0095E-04
9 26.186 Chlorobenzene		17.9479	3.16652	86017	14263	5.8 2	6	6	.1579	2.0747E-04
10 26.353 Ethylbenzene		20.3854	3.57612	106707	17580	6.0 2	6	6	0	1.5194E-04
11 26.586 1,3+1,4-Diethylbenzene		47.5021	8.57982	237575	46767	6.1 2	6	6	.1562	1.6512E-04
12 27.806 1,2-Diethylbenzene		22.2730	3.32912	26856	14460	6.0 2	6	6	0	2.5645E-04
13 28.240		1.5028	0.26222	4441	416	10.7 2	6	6		3.3978E-04
14 29.526 XCB		16.8925	2.75602	21033	10587	5.6 1	6	6	0	2.7478E-04
15 32.719 1,3-Di chlorobenzene		19.5814	3.33652	25913	12221	5.4 2	6	6	0	2.5645E-04
16 33.099 1,4-Di chlorobenzene		20.7456	3.32652	23483	14215	5.2 2	6	6	0	2.5725E-04
17 34.185 1,2-Di chlorobenzene		17.7454	3.16652	31995	9417	5.5 1	6	6	0	3.4517E-04

TOTAL AMOUNT = 566.8672

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT
1	56.1072	9.897753%



and height stored in: 1: 21201002.115  
 File: D:\BIB04\BIB.F15 Printed on 04-02-1997 at 10:30:31  
 time: 0.00 min. Stop time: 37.00 min. Offset: 0 cts  
 value: 1 cts High Value: 52362 cts Scale factor: 1.0



SCIENCE RECORDED IN 2145711515.SEC

# INTERNAL STANDARD TABLE

\*\*\*\*\*

\*\*\*\*\* 04-07-1997 09:40:40 Version 5.2.0 \*\*\*\*\*  
 Sample Name: 2008 L FULL BLA 12 Data File: 2145711515.SEC  
 Date: 04-02-1997 09:58:02 Method: 2145711515 04-07-1997 17:31:25 Version: 5.2.0

Interface: 1 Client: 2 Operator: FIM Channel: A Width: 11.0  
 Starting Peak Width: 10 Threshold: 1.0 Area Threshold: 800  
 Instrument Type: PE 8500 GC FID/FID Column Type:  
 Solvent Peak Width:

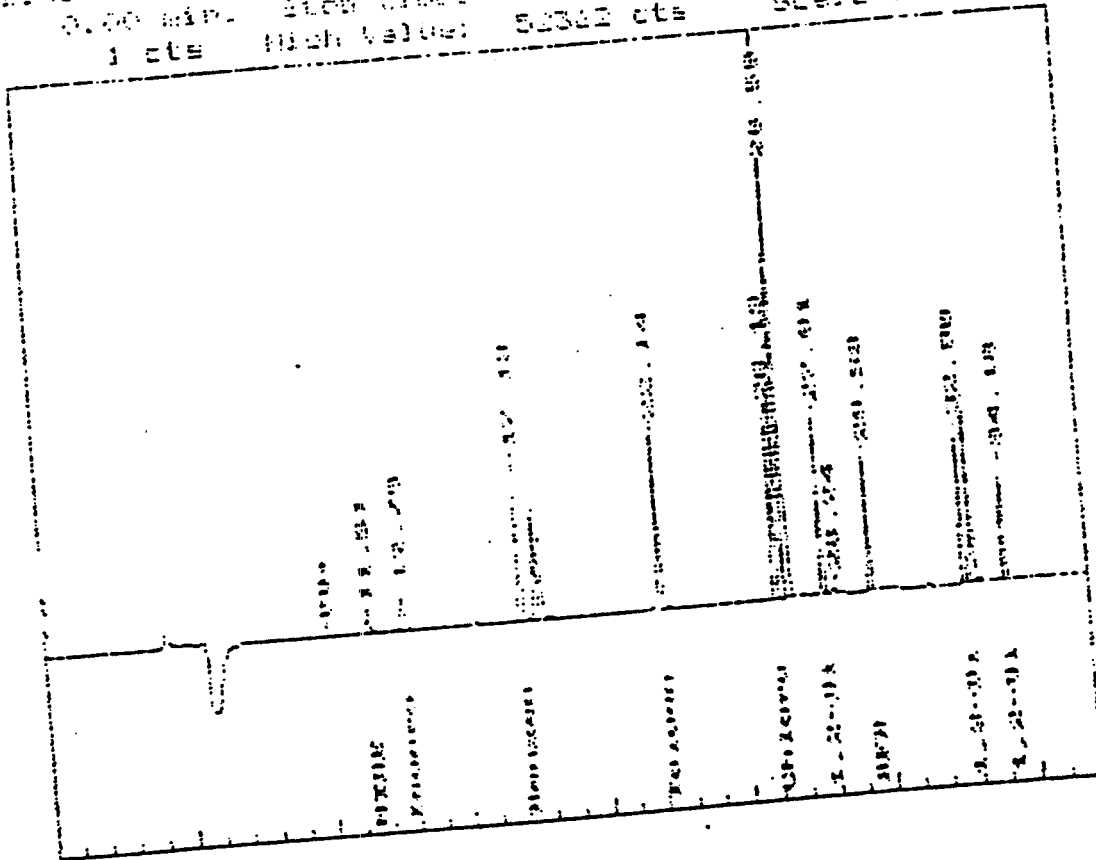
Condition: Detector: 0 Detector: 1  
 Method: 2008 L FULL BLA 12 Method: 2008 L FULL BLA 12  
 Starting Offset: 0.00 Ending Retention Limit: 37.00  
 Area Reject: 1.00 One Sample per: 1.002 sec  
 Amount Injected: 1.00 Dilution Factor: 1.00  
 Internal Standard Amount: 20  
 Sample Weight: 1.0000g

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION IN ug/l	NORMALISED CONC	AREA	HEIGHT	HEIGHT BL	REF PEAK	INT STD PEAK	% DIFF	RET TIME	CONC/AREA
1	11.546	MTBE	10.1654	3.7563%	11239	341	11.9 1	4	4	0		9.0444E-04
2	12.792	Isobutylalcohol	15.2054	5.6635%	16245	2496	11.3 1	4	4	0		5.3633E-04
3	17.134	Benzene	17.8547	6.4563%	93563	12663	7.4 2	4	4	0		1.9022E-04
4	17.685	Fluorobenzene	20.0000	0.0000%	55561	8422	7.0 2	4	4	0		3.3475E-04
5	17.852	1,4-Difluorobenzene	22.5746	8.4083%	40534	5311	7.4 2	4	4	0		5.5492E-04
6	22.144	Toluene	18.5437	6.9069%	36567	14164	6.4 1	4	4	0		2.0595E-04
7	26.186	Chlorobenzene	17.9479	6.6857%	85317	14563	5.8 2	4	4	1.574		2.0747E-04
8	26.353	Ethylbenzene	20.3654	7.5927%	104200	17520	6.0 2	4	4	0		1.9194E-04
9	28.596	1,3,4-Trichlorobenzene	47.5021	17.8929%	157575	40767	6.1 2	4	4	1.7512		1.5912E-04
10	27.896	1,2-Dichlorobenzene	27.2750	10.1454%	26856	14860	6.0 2	4	4	0		1.5643E-04
11	28.240		1.5688	0.5620%	4441	416	10.7 2					3.5752E-04
12	29.526	BFB	16.8526	6.1919%	69033	10557	5.6 1	4	4	0		2.7675E-04
13	33.755	1,3-Dichlorobenzene	18.9214	7.0327%	65913	12281	5.4 2	4	4	0		2.8446E-04
14	33.045	1,4-Dichlorobenzene	20.7956	7.7452%	75463	14265	5.2 2	4	4	0		3.8233E-04
15	34.165	1,2-Dichlorobenzene	17.9424	6.6852%	51995	9419	5.5 1	4	4	0		3.4514E-04

TOTAL AMOUNT = 269.4809

GROUP NUMBER      GROUP AMOUNT      GROUP PERCENT  
 1      43.2036      16.100051

File # 112 - 11  
 Print time: 0.00 min. Stop time: 01.00 min. Offset: 0.00  
 Value: 1 cts High Value: 52362 cts Scale factor: 1.0



Output not detected  
 3-507-1 17 Processed: 04-02-1997 19:08:08. Segment 10. Cycle: 13  
 RAW DATA SAVED IN FILE D:\B48313.F15 Second Channel Stored in D:\B48313.F15

\*\*\*\*\* INTERNAL STANDARD TABLE \*\*\*\*\*

\*\*\*\*\* 04-02-1997 19:08:08 Version 3.2.0 \*\*\*\*\*

Sample Name: 3-507-1 IT Comp Data File: D:\B48313

Date: 04-02-1997 19:10:36 Method: E:\CFID\FID 02-27-1997 09:14:39 Version:

Interface: 1 Cycles: 13 Operator: RM Channel: A Validity: OK

Starting Peak Width: 10 Threshold: 100 Area Threshold: 500

\*\*\*\*\*

Instrument Type: SE 8500 GC FID Column Type:

Solvent Description:

Conditions:

Detector 0: Detector 1:

Head Information: METHOD: 3-2-8017 LFI1:

\*\*\*\*\*

Starting Time: 0.00 Ending retention time: 37.00

Area reject: 0 One sample per: 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Internal Standard Amount: 20

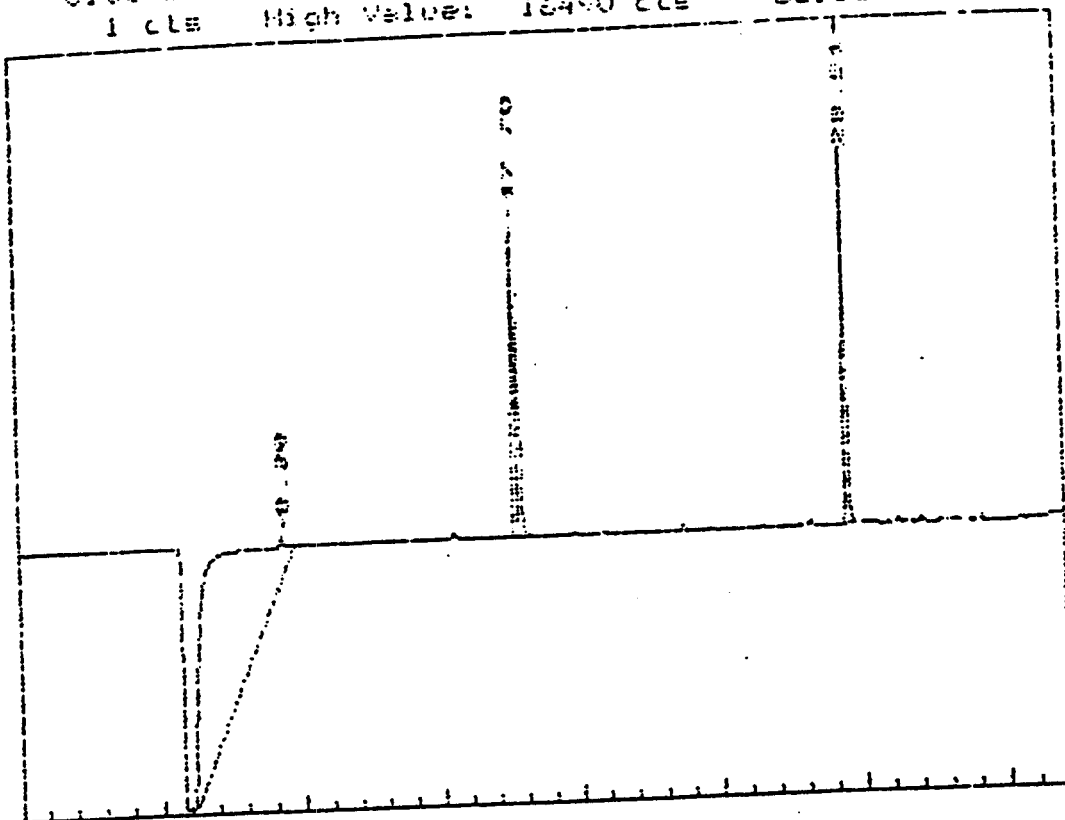
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION % Wt%	NORMALIZED CONC	AREA	HEIGHT	HEIGHT SL	REF PEAK	INT. STD PEAK	DELTA RET TIME	CONC/AREA
1	9.268		257.3406	86.68581	534547	1466	390.4 1	2			5.5594E-04
2	17.269	Fluorobenzene	20.0000	6.66667	35775	5135	7.9 2	2	2	0	5.5594E-04
3	17.836	1,4-Dichlorobenzene	24.5217	8.17392	27306	3711	7.4 2	2	2	0	9.1123E-04
	28.723		2.2257	0.741892	4663	390	10.3 1	2	2		5.5594E-04
	29.507	BFB	18.5415	6.18051	40589	4995	5.9 1	2	2	.1316	4.5285E-04

TOTAL AMOUNT = 345.0055

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

times, times, and heights stored in: D:\BLK04023.FIS  
File = D:\BLK04023.FIS Printed on 04-02-1997 at 11:24:06  
Start time: 0.00 min. Stop time: 37.00 min. Offset: 0 cts  
Low Value: 1 cts High Value: 18490 cts Scale factor: 1.0



put redirected to LPT1:

57-2 IT Processed: 04-02-1997 20:46:30. Segment 11. Cycle 14

DATA SAVED IN FILE D:\G469414.FTS Second Channel Stored in D:\H139414.FTS

# INTERNAL STANDARD TABLE

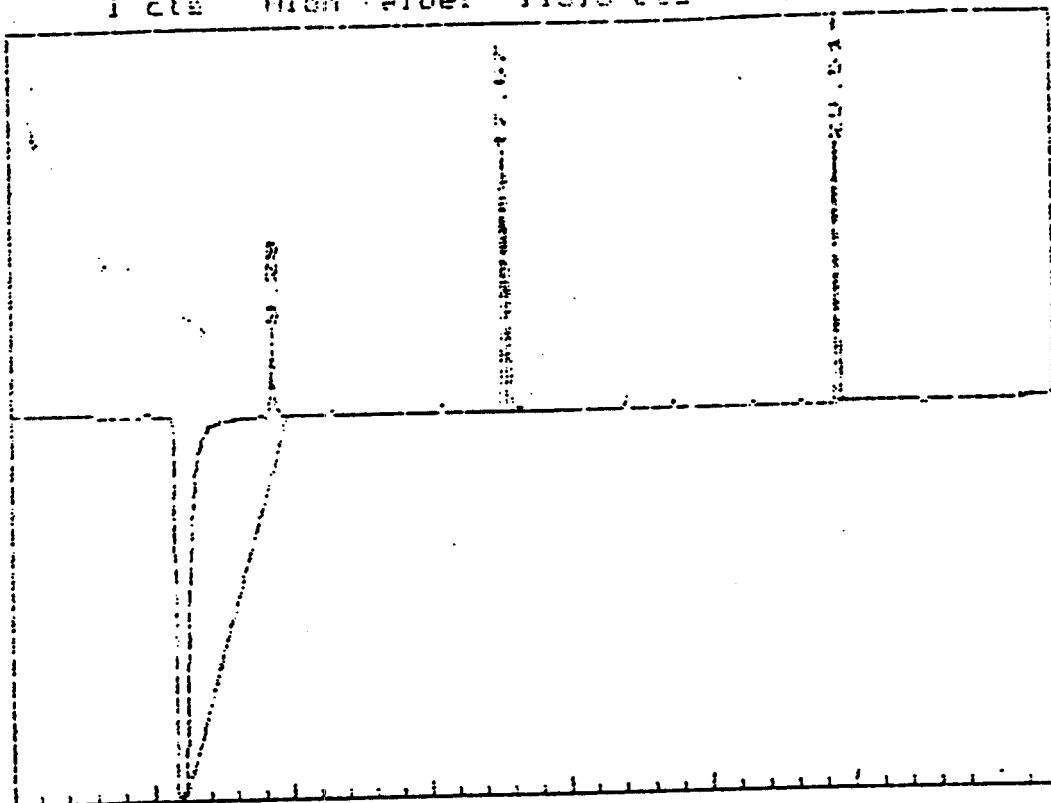
\*\*\*\*\* 04-02-1997 20:46:40 Version 5.2.0 \*\*\*\*\*  
Sample Name: 3-557-2 IT Corp Date File: D:\G469414  
Date: 04-02-1997 20:09:29 Method: E:\CFIDPID 02-27-1997 09:10:39 Version: 45  
Interface: 1 Cycles: 14 Operator: RMI Channel: A Yield: 11.6  
Starting Peak Width: 10 Threshold: .01 Area Threshold: 500  
\*\*\*\*\*  
Instrument Type: PE 5500 GC FIDPID Column Type:  
Solvent Description:  
Conditions:  
Detector 0: Detector 1:  
Misc. Information: METHOD 601.3020 LPT1:  
\*\*\*\*\*  
Starting Delay: 0.00 Ending retention time: 31.00  
Area reject: 0 One sample per 1.002 sec.  
Amount injected: 1.00 Dilution factor: 1.00  
Internal Standard Amount: 20  
Sample Weight: 1.00000

RET TIME	PEAK NAME	CONCENTRATION in ug/l	NORMALIZED CONC	AREA	HEIGHT	HEIGHT BL	REF PEAK	INT. STD PEAK	DELTA RET TIME	CHNC AREA
1	9.285	334.7792	89.4614%	546241	1786	336.1 1		2		6 1243E-04
2	17.669 Fluorobenzene	20.0000	0.0000%	32657	4410	7.4 2	2	2	0	6 1243E-04
3	17.836 1,4-Difluorobenzene	12.6334	4.0462%	22947	3189	7.1 2	2	2	0	1 0038E-03
4	29.509 RT2	16.8036	4.4004%	33683	5716	5.9 1	2	2	.1310	4 9887E-04

TOTAL AMOUNT = 574.3162

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT
--------------	--------------	---------------

times, and heights stored in: D:\0487414.F15  
File # 0: 0487414.F15 Printed on 04-02-1997 at 00:48:17  
t time: 0.00 min. Stop time: 37.00 min. Offset: 0 cts  
Value: 1 cts High Value: 11313 cts Scale factor: 1.0



Output redirected to LPT1:  
 07-1 IT Processed: 04-02-1997 19:07:58, Segment 10, Cycle 13  
 DATA SAVED IN FILE D:\6489313.P13 Second Channel Stored in D:\6489313.P13

\*\*\*\*\* INTERNAL STANDARD TABLE \*\*\*\*\*

\*\*\*\*\* 04-02-1997 19:08:08 Version 5.2.0 \*\*\*\*\*  
 Sample Name: 3-507-1 IT Comp Data File: D:\6489313  
 Date: 04-02-1997 19:10:36 Method: E:\FILPID 02-27-1997 05:14:39 Version: 02  
 Interfered: 1 Cycles: 13 Operator: RII Channel: A Wavelength: N/A  
 Starting Peak Width: 10 Threshold: 101 Area threshold: 800  
 Instrument Type: PE 8500 GC FILPID Column Type:  
 Solvent Description:  
 Conditions:  
 Detector 1: Detector 2:  
 Method: Information METHOD: GC-MS  
 Starting Retention: 0.00 Ending retention time: 37.00  
 Area repeat: 0 One sample per: 1.002 sec.  
 Amount injected: 1.00 Dilution factor: 1.00  
 Internal Standard Amount: 10  
 Sample Weight: 1.00000

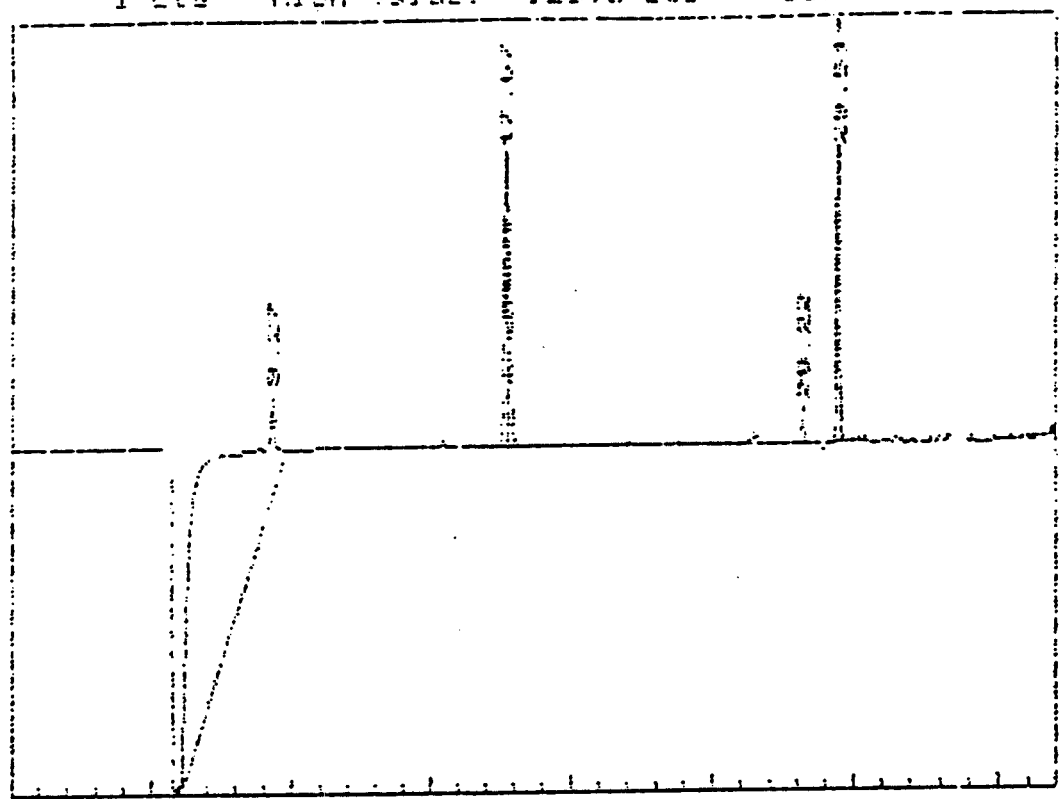
RET TIME	PEAK NAME	CONCENTRATION in ug/l	NORMALIZED CONC	AREA	HEIGHT	HEIGHT RL	REF PEAK	INT. STD PEAK	Z DELTA	RET TIME	CONC/AREA
1	9.262	257.3406	86.68582	534647	1406	380.4 1	2	2	0	5.5594E-04	
2	17.669 Florob +rene	20.0000	0.00000	35973	5135	7.0 2	2	2	0	5.5594E-04	
3	17.836 1,4-Dichlorobenzene	24.3317	7.25352	17306	3711	7.4 2	2	2	0	9.1127E-04	
4	28.723	2.2257	0.14892	4043	380	10.3 1	2	2		5.5594E-04	
5	29.507 BFR	18.5615	5.41142	40788	1995	5.9 1	2	2	.1316	4.5263E-04	

TOTAL AMOUNT = 343.0035

GROUP NUMBER      GROUP AMOUNT      GROUP PERCENT



1. Time, and heights stored in 000000000000  
File = D:\G485313.P15 Printed on 04-02-1997 at 19:36:15  
Run time: 0.00 min. Stop time: 37.00 min. Offset: 0.00  
Value: 1 cts High Value: 125% cts Scale factor: 1.0





Excavation of Tank 1005 July 1997

OP 1

AOC-A



AOC - A

